hpower
high power actuators by piezosystem jena

ABOUT HPOWER

hpower actuators combine fastest response times in µs, superior kHz dynamics, high force generation in the range of tens of kN and nanometer precision in a way that is unmatched by any other linear driving system. The actuation can be obtained without any mechanical wear, making the actuators extremely durable. **hpower** products include ring and stack type actuators, as well as shakers and shock generators. **hpower** is the result of the collaboration between piezosystem jena and Piezomechanik GmbH and therefore combines centuries of piezo expertise with new innovations.

HIGH LOAD PIEZOELECTRIC SHAKER

PIEZOELECTRIC SHAKER FOR HIGH LOAD OPERATIONS

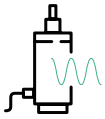
Concept

The new high load shaker is a state of the art high powered piezoelectric actuator that utilizes three high powered piezos working in parallel. This effectively triples the blocking force and load capacity of a standard hpower actuator which already leads its competitors in these areas. The piezo's are supplied with a single signal that is sent from the amplifier that is split in parallel across the piezos, ensuring that each stack recieves the same exact inputs. The system precisely distributes the applied load across the three piezos using a specially developed support system, allowing all three ceramics to work together in one motion against one force. Without this achievement, an unbalanced load or out of sync motion would cause the system to fail due to irregular strains. The assembly of the finished system is so precise that at the full extension of 9 µm, an absolutely straight movement is realized with hardly any measurable deviation.

Product highlights

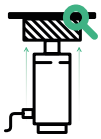
- max. amplitude 9 µm
- high force modulation
- high resonant frequency
- can handle 150 kN compressive load

Applications:

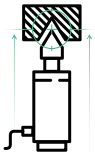


MODAL ANALYSIS

VIBRATION CONTROL



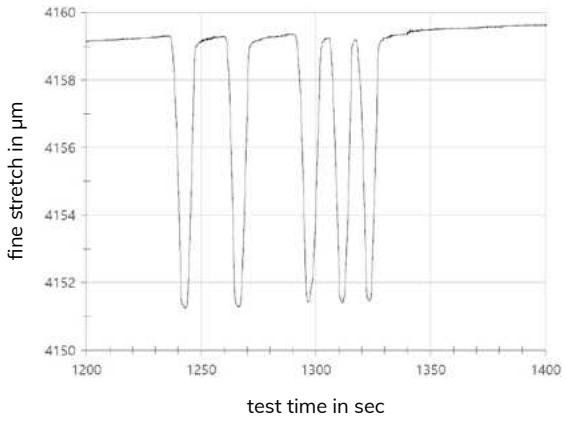
MATERIAL TESTING



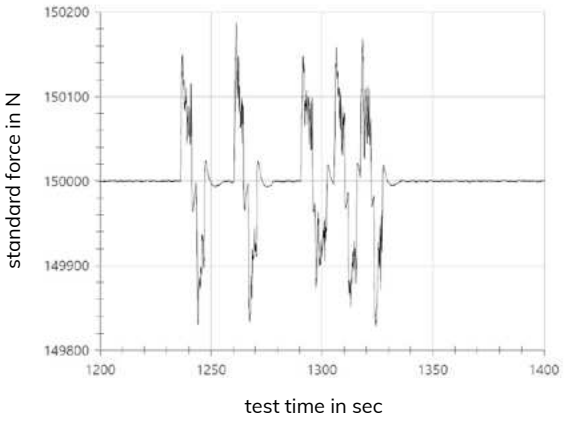
MECHANICAL ENGINEERING

hpower
high power actuators by piezosystem jena

Detection actuator movement



Proof of force control



Technical data of Shaker

Part no.	Unit	PST 1000/35/7 VS145 - HP1-3500-07-VS145
Maximum amplitude	µm	9
Electrical capacitance	µF	1,4
Voltage range	V	0 ... +1000
Blocking force (Large signal)	kN	66
Stiffness (Large signal)	kN/µm	9
Resonant frequency (Stand alone)	kHz	3,5
Permissible load	kN	150
Dimensions (h x d)	mm	180 x Ø145
Temperature range	°C	-20 to +80 (-4°F to 176°F)
Material	-	stainless steel
Weight without cables Weight or with cables	kg	16 18,5